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10/616,344

07/09/2003

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EXAMINER

RIVAS, SALVADOR E

ART UNIT

PAPER NUMBER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/616,344

Applicant(s)

IWAMURA, RYUICHI

Examiner

Salvador E. Rivas

Art Unit

2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 20-30 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on July 09, 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date 7/09/2003 and 1/26/04.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements submitted on July 9, 2003 and January 26, 2006 have been considered by the Examiner and made of record in the application file.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "540" and "572" have both been used to designate the block entitled *BUSY MESSAGE/TRANSMISSION REFUSED*. Also, because reference characters "516" and "564" have both been used to designate the block entitled *ASSIGN CARRIERS*. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. The disclosure is objected to because of the following informalities:

- a) In the Brief Description Of the Drawings section, the applicant must incorporate *Fig.14* of the **Drawings** in order to provide precision and clarity to the language of the disclosure.
- b) On line 28 of page 7 and line 3 of page 8, the word "converter" is repeated more than once in the sentence, delete one of the words in order to provide precision and clarity to the language of the disclosure.
- c) On line 29 of page 7, applicant must replace the letter "d" in the word "decoder" with the letter "D" in order to provide precision and clarity to the language of the disclosure.
- d) On line 6 of page 8, the number "3" is repeated more than once in the number sequence "3376", delete one of the "3"s in order to provide precision and clarity to the language of the disclosure.
- e) On line 18 of page 8, PLC interface 112 does not correspond with the number found on *Fig.4* of the Drawings. Also, applicant must replace the letter "i" in the word "interface" with the letter "I". Correct in order to provide precision and clarity to the language of the disclosure.
- f) On line 26 of page 8, applicant must replace the letter "m" in the word "memory" with the letter "M" in order to provide precision and clarity to the language of the disclosure.

Appropriate correction is required.

Claim Objections

5. **Claims 2-4, 7-14, 17-20, 23-24, and 27-29** are objected to because of the following informality:

- a) For all the claims cited above, add the word "slot" after the word "time",
in order to provide precision and clarity to the language of the claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. Claim 12 recites the limitation "the specified maximum". There is insufficient antecedent basis for this limitation in the claim.

Examiner will consider claim 12 to be dependent on claim 11 instead of claim 6 so that the claim can be in compliance with 35 U.S.C. 112.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 6-10, 13, 15, and 22-25 are rejected under 35 U.S.C. 102(b) as being anticipated by **Rakib et al. (US Patent # 6356555 B1)**.

Consider **claim 1**, Rakib et al. clearly shows and discloses a time slot and carrier allocation method for time division multiple access (TDMA) multiple carrier communications, comprising: determining from a tone map that first and second time slots are generally allocated to a first and a second receiver respectively (Column 73

Lines 7-9); determining that a carrier is unused during the first time slot (Column 73 Lines 9-12); and transmitting a new tone map to the first and second receivers that specifies that the unused carrier is to be reallocated to the second receiver (Column 73 Lines 54-60 and Column 75 Lines 55-60).

Consider **claim 2**, and **as applied to claim 1 above**, **Rakib et al.** clearly shows and discloses a time and carrier allocation method, further comprising transmitting a data stream to the second receiver using the reallocated carrier (Column 75 Lines 55-60).

Consider **claim 3**, and **as applied to claim 1 above**, **Rakib et al.** clearly shows and discloses a time and carrier allocation method, wherein a first stream of data is transmitted to the first receiver (see Fig. 10, Column 10 Lines 50-58, and Column 75-76 Lines 66-67 – Lines 1-12) and wherein the first stream of data comprises audio/video data (Abstract and Column 6 Lines 55-60).

Consider **claim 4**, and **as applied to claim 1 above**, **Rakib et al.** clearly shows and discloses a time and carrier allocation method, wherein the communication system comprises an Orthogonal Frequency Division Multiplexed TDMA communication system (Column 8 Lines 4-8 and Column 13 Lines 57-60).

Consider **claim 5**, and **as applied to claim 1 above**, **Rakib et al.** clearly shows and discloses a method where an electronic storage medium storing instructions which, when executed on a programmed processor, carry out a time slot and carrier allocation (Fig.12, Column 7 Lines 48-67 and Column 45 Lines 30-67).

Consider **claim 6**, Rakib et al. clearly shows and discloses a time slot and carrier allocation method for time division multiple access (TDMA) multiple carrier communications, comprising: determining from a tone map that a first time slot is generally allocated to a first receiver for receipt of a single stream of data for each time slot usage (Column 73 Lines 7-9); determining that a carrier is unused during the first time slot; determining that a second stream of data is to be sent to the first receiver (Column 37 Lines 65-67-Column 38 Lines 1-6); and transmitting a new tone map to the first receiver that specifies that the unused carrier is to be reallocated to the second stream of data (Column 73 Lines 54-60 and Figs.29-33, Column 78 Lines 36-43).

Consider **claim 7**, and **as applied to claim 6 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method, further comprising transmitting the second stream of data to the first receiver using the reallocated carrier (Column 78 Lines 65-67 - Column 79 Lines 1-8).

Consider **claim 8**, and **as applied to claim 6 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method, wherein the second stream of data comprises a control data stream (Column 76 Lines 16-21).

Consider **claim 9**, and **as applied to claim 6 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method, wherein a first stream of data is transmitted to the first receiver (see Fig. 10 and Column 10 Lines 50-58)_and wherein the first stream of data comprises audio/video data (Abstract and Column 6 Lines 55-60).

Consider **claim 10**, and **as applied to claim 6 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method, wherein the first and second streams of data each comprise one of audio/video data or control data (Column 76 Lines 16-21 and Column 78 Lines 58-67).

Consider **claim 13**, and **as applied to claim 6 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method, wherein the communication system comprises an Orthogonal Frequency Division Multiplexed TDMA communication system (Column 8 Lines 4-8 and Column 13 Lines 57-60).

15. Consider **claim 15**, and **as applied to claim 6 above**, Rakib et al. clearly shows and discloses An electronic storage medium storing instructions which, when executed on a programmed processor, carry out a time slot and carrier allocation (Fig.12, Column 7 Lines 48-67 and Column 45 Lines 30-67).

Consider **claim 22**, Rakib et al. clearly shows and discloses a time slot and carrier allocation method for time division multiple access (TDMA) multiple carrier communications, comprising: determining if a time slot is available (Column 37 Lines 48-54), and if so assigning a stream of data destined for a specified receiver to the time slot (Column 37 Lines 55-57); if no time slot is available, determining if a time slot having the same destination is available (Column 37 Lines 55-57 and Lines 62-64); and if a time slot having the same destination is available, assigning a carrier in the time slot to the stream of data (Column 37 Lines 66-67 - Column 38 Lines 1-5).

Consider **claim 23**, and **as applied to claim 22 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method, further comprising: if no time

slot is available having the same destination, determining if another time slot is available and if so assigning a carrier in the another time slot (Column 72 Lines 2-51).

Consider **claim 24**, and **as applied to claim 22 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method, further comprising: determining if a reassignable data stream exists (Column 73 Lines 5-9); If a reassignable data stream exists, stopping the stream (Column 73 Lines 12-16); assigning a carrier to the stream of data destined for the receiver (Column 73 Lines 9-12); and reassigning the carriers designated for the reassignable data stream (Column 73 Lines 12-16).

Consider **claim 25**, and **as applied to claim 22 above**, Rakib et al. clearly shows and discloses a method where an electronic storage medium storing instructions which, when executed on a programmed processor, carry out a time slot and carrier allocation (Fig.12, Column 7 Lines 48-67 and Column 45 Lines 30-67).

Claims 26-29 are rejected under 35 U.S.C. 102(e) as being anticipated by **Yonge,III et al. (US Patent # 6,442,129 B1)**.

Consider **claim 26**, Yonge, III et al. clearly shows and discloses a time slot and carrier allocation method for time division multiple access (TDMA) multiple carrier communications, comprising: determining if a number of commonly used carriers between two or more receivers is greater than a threshold number of carriers (Column 11 Lines 64-67 - Column 12 Lines 1-18, Lines 34-35); if so, calculating a number of time slots as a carriers divided by the number of commonly used carriers (Column 8 Lines

41-60); assigning the time slots to the receivers (Column 13 Lines 53-63); and assigning a stream of data to the common carriers (Column 13 Lines 23-52).

Consider **claim 27**, and **as applied to claim 26 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method, further comprising: if the number of commonly used carriers is less than the threshold number of carriers calculating a number of slots as a fraction of a previously assigned number of slot numbers (Column 12 Lines 19-33); assigning the time slots to the receivers (Column 13 Lines 23-63); and assigning a stream of data to the common carriers (Column 13 Lines 53-63).

Consider **claim 28**, and **as applied to claim 26 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method, further comprising transmitting a tone map that specifies the assigned common carriers and the time slots (Column 13 Lines 53-63).

Consider **claim 29**, and **as applied to claim 26 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method, wherein the threshold comprises 50% and wherein the fraction comprises one half (Column 12 Lines 19-33).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 11-12 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Rakib et al. (US Patent # 6,356,555 B1)** in view of **Yonge,III et al. (US Patent # 6,442,129 B1)**.

Consider **claim 11**, and **as applied to claim 6 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method except for wherein a number of unused carriers reallocated to the second stream of data is less than a specified maximum.

In the same field of endeavor, Yonge, III et al. illustrates where the number of available carriers to be reallocated is determined based on information generated at a receiving network node (Column 1 Lines 45-54 and Column 2 Lines 1-9).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to have a number of carriers available at a receiving node network as shown by Yonge,III et al. in method of Rakib et al. for the purpose of time and carrier allocation in a network.

Consider **claim 12**, and **as applied to claim 11 above**, Rakib et al. discloses a time slot and carrier allocation method (Fig.34 Column12 Lines 39-44).

However, Rakib et al. does not disclose expressly the specified maximum is 10% of the available carriers.

Applicant has not disclosed that the specified maximum having 10% of the available carriers provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with Yonge, III et al. because the modulation rate can have predetermined value of available carriers set aside in a tone map for the transmission of data to occur to a selected receiver on a given network (Column 13 Lines 25-40).

Therefore it would have been obvious to one of ordinary skill in the art to modify the value a as shown by Yonge, III et al. in the method of Rakib et al. to obtain the time slot and carrier allocation method as specified in the claim.

Consider **claim 30**, and **as applied to claim 26 above**, Rakib et al., as modified by Yonge, III et al., clearly shows and discloses a method where an electronic storage medium storing instructions which, when executed on a programmed processor, carry out a time slot and carrier allocation (Fig.12, Column 7 Lines 48-67, and Column 45 Lines 30-67).

Claim 14, 16-18, 20-21 rejected under 35 U.S.C. 103(a) as being unpatentable over Rakib et al. (US Patent # 6,356,555 B1) in view of Taylor et al. (US Patent Publication Application # 2003/0039317 A1).

Consider **claim 14**, and **as applied to claim 6 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method, except for wherein the new tone

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map specifies that the unused carrier is to be reallocated to a plurality of other streams of data.

In the same field of endeavor, Taylor et al. show cases the selection of a new tone map based on unused carriers that can reallocated to a plurality of other streams of data ([0011]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to have a tone map selector as shown by Taylor et al. in method of Rakib et al. for the purpose of time and carrier allocation in a network.

Consider **claim 16**, Rakib et al. clearly shows and discloses a time slot and carrier allocation method for time division multiple access (TDMA) multiple carrier communications, comprising: determining from a tone map that first and second time slots are generally allocated to a first and a second receiver respectively (Column 73 Lines 7-9).

However, Rakib et al. fails to illustrate how from the determining from the tone map that the first and second receivers are able to receive using a common set of carriers; determining that a single data stream is to be transmitted to the first and second receivers; and transmitting a new tone map to the first and second receivers that specifies that the first and second receivers are to receive the single data stream using the common set of carriers during one or more designated time slots.

In the same field of endeavor, Taylor et al. show cases a device (sub-carrier map selector 202 (Fig.2)) that determines a tone map for data intended for a receiver(s) coupled to a network to be able to receive using a common set of carriers ([0028]). Also,

the said sub-carrier map selector based on the information being transmitted creates a tone map for the data to be transmitted to receiver(s) coupled to the network ([0027]). Once information has been collected and processed by said sub-carrier selector it then begins to transmit a new tone map to receiver(s) that specifies which receivers coupled to the network are to receive a particular data stream using the common set of carriers during one or more designated time slots([0011] and [0034]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate a carrier map selector as shown by Taylor et al. in the method of Rakib et al. for the purpose of assigning time and carrier allocation for data streams destined to receivers coupled a network.

Consider **claim 17**, and **as applied to claim 16 above**, Rakib et al., as modified by Taylor et al., clearly shows and discloses a time and carrier allocation method, further comprising transmitting the single data stream using the common set of carriers during the designated time slots (Column 69 Lines 54-58 and Column 70 Lines 11-16).

Consider **claim 18**, and **as applied to claim 16 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method except for wherein the number of common carriers is greater than a threshold number of available carriers.

In the same field of endeavor, Taylor et al. show cases a counter that establishes the sub carriers availability are based on the comparison between the SNR of the carriers and the threshold ([0036]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate a carrier counter so as to compare

SNR carrier with a predetermine threshold as shown by Taylor et al. in the method of Rakib et al. for the purpose of assigning time and carrier allocation for data streams destined to receivers coupled a network.

Consider **claim 20**, and **as applied to claim 16 above**, Rakib et al. clearly shows and discloses a time and carrier allocation method except for wherein the number of common carriers is less than a threshold number of available carriers; and wherein the tone map designates that the first and second receivers receive the single data stream using merged time slots.

In the same field of endeavor, Taylor et al. show cases an instance where the sub-carriers can be less than a predetermined threshold ([0036]). Also, Taylor et al. show cases where based on the results of the comparison between the carriers and threshold number the tone map designates the best mode for the transmission of data to receivers on a given network ([0038]-[0039]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to have a selector output a tone map based on results between carriers values compared to a predetermine threshold to allocate particular data streams as shown by Taylor et al. in the method of Rakib et al. for the purpose of assigning time and carrier allocation for data streams destined to receivers coupled a network.

Consider **claim 21**, and **as applied to claim 16 above**, Rakib et al., as modified by Taylor et al., clearly shows and discloses a method where an electronic storage medium storing instructions which, when executed on a programmed processor, carry

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out a time slot and carrier allocation (Fig.12, Column 7 Lines 48-67, and Column 45 Lines 30-67).

Allowable Subject Matter

9. **Claim 19** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is of statement for the reasons for the indication of allowable subject matter.

Consider **claim 19**, the best prior art found during the examination of the present, Rakib et al. in view of Taylor et al., discloses a time slot and carrier allocation method but fails to disclose the threshold number comprises approximately 50% of available carriers.

Conclusion

10. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or early communications from the Examiner should be directed to Salvador E. Rivas whose telephone number is (571) 270-1784. The examiner can normally be reached on Monday-Friday from 7:30AM to 5:00PM.

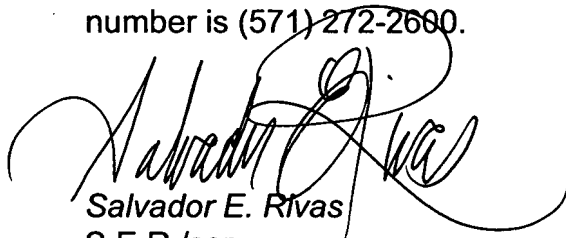
If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272- 7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2680.



Salvador E. Rivas
S.E.R./ser

May 17, 2007

